

USSR

UDC 541.183

NAGIYEV, M. F., and IBRAGIMOV, Ch. Sh., Institute of Theoretical Problems of Chemical Technology, Acad. Sc., AzerbSSR

"Theoretical Analysis of Vapor Adsorption Isotherms on Nonuniformly Porous Sorbents"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 5-6(71-72), 1971, pp 93-98

Abstract: Actual porous sorbent materials are very complex, their structures consisting of pores with all possible sizes and shapes, making a theoretical analysis of the sorption process very difficult. In an attempt to approach reality, model adsorbents were selected with diverse porosity and their vapor adsorption isotherms were analyzed theoretically. The model of a porous body developed by Adzuma was used for adsorbents with cylindrical capillary pores. Sorption characteristics of this model adsorbent are treated mathematically.

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Polymers and Polymerization

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UDC 547.318+66.062+827.725

IBRAGIMOV, F., GAFUROV, T. G., and SIDEL'KOVSKAYA, F. P., Scientific Research Institute of Chemistry and Technology of Cotton Cellulose

"Unsaturated Alcohols. 2-[3-(Pyrrolidonyl- and Piperidonyl-1)-2-hydroxypropoxy] ethyl esters of Acrylic and Methacrylic Acids"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 9, Sep 71, pp 1984-1986

Abstract: Reaction of 2-(2,3-epoxypropylhydroxy)ethyl esters of acrylic and methacrylic acids with pyrrolidone-2 and piperidone-2 gave their 2-[3-(pyrrolidonyl)-1)- and 3-(piperidonyl-1)-2-hydroxypropoxy] ethyl esters. To 0.2 g-mole of 2-hydroxyethyl ester of acrylic acid in 30 ml xylene, 0.2 g-atom of sodium was added with energetic stirring and cooling. Then 0.2 g-mole of epichlorohydrin was added dropwise at 30-35° and stirred for 4 hrs. After cooling, the product was extracted with ether and distilled, yielding 2-(2,3-epoxypropoxy)-ethyl ester of acrylic acid (I), b. p. 25-26°/18 mm,  $d_4^{20}$

1.0594,  $n_D^{20}$  1.4675. 2-(2,3-epoxypropoxy)ethyl ester of methacrylic acid was obtained analogously, b.p. 31-32°/15 mm,  $d_4^{20}$  1.1082,  $n_D^{20}$  1.4721. Reacting (I)

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IBRAGIMOV, F., et al., Zhurnal Organicheskoy Khimii, Vol 7, No 9, Sep 71, pp 1984-1986

with pyrrolidone-2 in dioxane at 90-95° gave 2-[3-(pyrrolidonyl-1)-2-hydroxy-propoxy]ethyl ester of acrylic acid, b. p. 123-128°/12 mm,  $d_4^{20}$  1.1120,  $n_D^{20}$  1.4862.

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UDC 539.3

IBRAGIMOV, F. G.

"Bending of a Circular Plate Lying on a Nonhomogeneous Combined Base"

V sb. Prochnost' i seysmostoykost' sooruzh. (Strength and Earthquake Resistance of Structures -- Collection of Works), Tashkent, "Fan", 1971, pp 147-156 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V255)

Translation: An approximate solution is given to the problem of the axisymmetric bending of a distributed transverse load of a circular plate of constant thickness lying on a continuous nonhomogeneous combined base, the deformation modulus of which varies according to a power law over the depth. The settling of the foundation is related to the resistance reaction by an integral relationship. Expansion in series in terms of Gegenbauer polynomials is used to represent the normal reactions of the ground. The condition of close fitting of the plate to the base leads to an infinite system of algebraic equations for determining the coefficients of the series. The solution is to be found with a digital computer. A numerical example was given. Diagrams of bending moments, transverse forces and reaction pressure for a nonhomogeneous base in a nonhomogeneous combined base are constructed. 7 ref. V. M. Kulakov.

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1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF AN AMMONIA-CARBON DIOXIDE RATIO ON THE DEGREE OF  
CONVERSION OF CARBON DIOXIDE INTO UREA, AND REASONS FOR THE APPEARANCE  
AUTHOR--(02)-NEUPOKOYEV, G.I., IBRAGIMOV, F.KH.

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119503

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEGREE OF CONVERSION OF CO SUB2 INTO UREA AT 135-90DEGREES AND 190-5 ATM INCREASES SHARPLY WHEN THE NH SUB3:CO SUB2 MOLE RATIO IS INCREASED FROM (3.2-3.5):1 TO (4.0-4.3):1 AND INCREASES VERY SLIGHTLY AT HIGHER RATIOS; IT DECREASES WITH INCREASING EXCESS OF H SUB2 O IN THE REACTOR, E.G. AT AN NH SUB3:CO SUB2 RATIO OF 4.1:1 THE DEGREE OF CONVERSION DECREASES FROM 69 TO 62PERCENT WHEN THE EXCESS OF WATER IS INCREASED FROM 0.4 TO 2.2 MOLE-MOLE. THE APPEARANCE OF AN EXCESS OF H SUB2 O IN THE REACTOR IS DUE TO ENTRAINMENT OF WATER WITH GASES FROM THE RECTIFICATION AND DESORPTION COLUMNS AND, TO A LESSER EXTENT, FROM THE WASHING COLUMNS.

UNCLASSIFIED

USSR

UDC 631.542.25:632.7:633.57

ISMAILOV, M. G., and IBRAGIMOV, G., Azerbaydzhan Scientific Research Institute  
of Cotton Growing

"The Role of Defoliation in Lowering the Quantity of Cotton Plant Pests"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 8 (118), 1973, pp 39-40

Abstract: Under conditions prevailing in Azerbaydzhan, the optimal period  
for defoliation of cotton plants (the first half of September) coincides with  
massive hibernation migration of arachnoidal mites. Treatment of cotton  
plants during this period with magnesium chlorate or with butyphos should  
lower considerably the potential reservoir of the mites and owlet moth  
larvae on the cotton fields.

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Plant Pathology

UDC 632.4:633.11:582.285.2(47+47)

USSR

IESOV Y., M. P., FEDOROVA, V. A., SHKODENKO, V. I., TERESYCHENKO, B. A.,  
SHOPINA, V. V., IERAGIMOV, G. R., ANGELOV, S. A., YEROCURVA, H. L.,  
MAKONIYA, A. K., TERESYCHEN, V. F., BOYKO, Yu. I., SHAVANUA, Z. A.,  
CHUMAKOV, A. Ye., YAREMENKO, Z. I., PANCHAIZE, L. V., and BLICHENKOV, A. A.,  
All-Union Institute of Plant Protection, Ukrainian Institute of Plant  
Protection, Ukrainian Agricultural Academy, Azerbaydzhan Institute of Agricul-  
ture, Central Asian Institute of Plant Pathology, and Kazan' Institute of  
Plant Protection, Georgian Institute of Plant Pathology

"Race Formation in *Puccinia tritici* Erik. and *P. striiformis* West. in the  
USSR"

Leningrad, Mikologiya i Fitopatologiya, No 6, 1972, pp 423-434

Abstract: Study of the causative agents of orange leaf and stripe rusts of  
wheat in different parts of the Soviet Union and some other European countries  
showed that, despite the great variety of races, only a few are very mobile for  
epiphytation. The main races are fairly constant from year to year. This  
stabilization is due to the fact that rusts were less frequent of all the varieties.  
wheat varieties in the USSR are susceptible to all races of the pathogen. The  
racial composition of the pathogen in the USSR is similar to that occurring  
elsewhere in Europe because of the exchange of original forms and use of the  
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IESOVY, M. P., et al., Mikrobiologiya i Fitopatologiya, No 6, 1978, pp 438-454

same components in breeding wheat varieties. The appearance of new races and biotypes and changes in their virulence are the result of mutation, heterokaryosis, resistant varieties, and sexual hybridization.

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B. Mathematical Statistics

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IBRAGIMOV, I. A. and KHAS'MINSKIY, R. Z.

"Asymptotic Analysis of Statistical Estimates for the 'Almost Smooth' Case"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 250-260 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V137)

Translation: It is shown in the works of the authors (RZHMate, 1972, 12V93; 1973, 6V113) that in the case of existence of the finite information quantity of Fisher I, estimates  $t_n$  of shift parameter  $\theta$  are, like the estimate of the maximum likelihood and the generalized base estimates for the loss function  $|x|^a$  ( $a \geq 1$ ) with very general assumptions, asymptotically equivalent to each other and asymptotically normal with parameters  $(0, 1/nI)$ . The present work studies the case of disruption of the basic condition of finiteness of the information quantity for which, however, similar results of asymptotic normality of estimates remain in force. Namely, a class of densities is studied having a finite number of singularities at points  $x_k$  ( $k = 1, \dots, l + m$ ) in the neighborhood of which

$$f(x) = \begin{cases} a_k |x - x_k|^\gamma = \psi_k(x), & x < x_k, \\ b_k |x - x_k|^\gamma + \phi_k(x), & x > x_k. \end{cases}$$

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IBRAGIMOV, I. A. and KHAS'MINSKIY, R. Z., Teoriya Veroyatnostey i yeye  
Primeneniya, 1973, Vol 18, No 2, pp 250-260

where  $\gamma = 1$ ,  $a_k \geq 0$ ,  $b_k \geq 0$  for  $k = 1, 2, \dots, l$ ;  $\gamma = 1/2$  for  $k = l+1, \dots, l+m$ , while  $\psi_k(x)$  are twice continuously differentiable functions such that

$$\begin{aligned}\psi_k(x_k) &= \psi_k'(x_k) = 0, \quad k = 1, 2, \dots, l, \\ \psi_k(x_k) &> 0, \quad k = l+1, \dots, l+m.\end{aligned}$$

It is shown that in this case, estimates  $t_n$  are also asymptotically similar and asymptotically normal with parameters  $(\theta, 1/R_n \ln n)$ , where

$$B = \sum_{k=1}^l (a_k + b_k) + \frac{1}{4} \sum_{k=l+1}^{l+m} \frac{a_k^2 + b_k^2}{\psi_k(x_k)},$$

where for all  $p > 0$  as  $n \rightarrow \infty$

$$E_n \left[ \sqrt{B \ln \ln n} (t_n - \theta) \right]^p \rightarrow 2^p \Gamma((p+1)/2) / \sqrt{\pi}.$$

Limit theorems are also produced for the a posteriori density coinciding in formulation with the smooth case with a similar change in normalizing factor by  $c \ln n$  times.

B. Levit

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USSR

IBRAGIMOV, I. A. and KHAS'MINSKIY, R. Z.

"Estimation of the Parameter of a Signal in Gaussian White Noise"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 435-438 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V189)

Trnaslation: The process  $X_\epsilon(t)$ ,  $t \in [0, 1]$  is observed, defined by the stochastic equation  $dX_\epsilon(t) = S_\epsilon(t, \theta)dt + d\xi(t)$ , where  $\xi(t)$  is a standard Wiener process,  $\theta \in \Theta$  is the parameter to be estimated and  $\epsilon \rightarrow 0$ . Assuming that  $\Theta$  is an open set on a straight line, conditions are formulated guarantecing the existence of consistent and asymptotically effective estimates of  $\theta$ .

D. Chibisov

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B. Mathematical Statistics

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IBRAGIMOV, I. A., KHAS'MINSKIY, R. Z.

"Asymptotic Behavior of Certain Statistical Estimates. II. Limit Theorems for A Posteriori Density and Bayes Estimates"

Teoriya Veroyatnostey i Ee Primeneniya [Theory of Probability and its Applications], 1973, Vol 18, No 1, pp 78-93 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V113, by D. Chibisov).

Translation: For Part I, see RZhMat, 1972, 12V93. Under the conditions formulated in Part I, the authors prove the convergence of the a posteriori density to a Gaussian process, the asymptotic normality of estimates of maximum likelihood, Bayes estimates  $t_n^{(a)}$  corresponding to loss function

$W(\theta, d) = |d - \theta|^a$ , Pitman estimates for the shift parameter, as well as convergence of the moments of these estimates with corresponding normalization to moments of the normal rule. It is proven that estimates  $t_n^{(a)}$  for

various  $a \geq 1$  are equivalent in the sense that for any  $p > 0$

$$E \left\{ \sqrt{n} \left| t_n^{(a)} - t_n^{(a)} \right| \right\}^p \rightarrow 0, \quad n \rightarrow \infty.$$

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IBRAGIMOV, I. A., AND MASLOVA, N. B.

"Average Number of Real Roots of Random Polynomials. II. Coefficients With Nonzero Means"

Moscow, Teoriya Veroyatnostey i Yeye Primeneniya, Vol 16, No 3, Jul/Aug/Sep 71, pp 495-503

Abstract: Continuing an earlier article "Mean Number of Real Roots of Random Polynomials. I. Coefficients With Zero Mean," the following theorem is proven: "Let the Random variables  $\xi_j$  ( $j = 0, 1, 2, \dots, n, \dots$ ) be independent, identically distributed, and belong to the domain of attraction of the normal law and let  $E \xi_j = a \neq 0$ ; then

$$E \left\{ N_n / Q_n(x) \neq 0 \right\} \sim \frac{1}{\pi} \ln n \text{ as } n \rightarrow \infty.$$

In proving the theorem, the mean number of positive zeros of the polynomial  $Q_n(x)$  is  $o(\ln n)$ . In the proof it is shown that

$$E \left\{ N_n(-\infty, 0) / Q_n(x) \neq 0 \right\} \sim \frac{1}{\pi} \ln n.$$

Here  $Q_n(x) = \sum_{j=0}^n \xi_j x^j$  and  $N_n$  is the number of real roots of  $Q_n$ .

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UDC: 519.21

IBRAGIMOV, I. A.

"Completely Regular Multidimensional Stationary Processes With Discrete Time"

Tr. Mat. in-ta AN SSSR (Works of the Mathematics Institute, Academy of Sciences of the USSR), 1970, 111, pp 224-251 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V139)

Translation: Vector stationary processes  $x(t) = (x_1(t), \dots, x_n(t))$  with discrete time which satisfy the complete regularity condition

$$\rho(\tau) = \sup_{\zeta, \eta} \rho(\zeta, \eta) \rightarrow 0, \tau \rightarrow \infty. \quad (1)$$

are characterized in spectral terms, where  $\rho(\zeta, \eta)$  is the coefficient of covariation of the random quantities  $\zeta, \eta$  belonging to the linear envelopes  $\{x_i(t), t < 0, 1 \leq i \leq n\}$  and  $\{x_i(t), t > \tau, 1 \leq i \leq n\}$ . The basic results: condition (1) implies the absolute continuity of the spectrum  $x(t)$ , an almost everywhere constant rank of spectral density  $f(\lambda)$ , and the repre-

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IBRAGIMOV, I. A., Tr. Mat. in-ta AN SSSR, 1970, 111, pp 224-251

sensation

$$f(\lambda) = P(e^{i\lambda}) g(\lambda) P^*(e^{i\lambda}), \quad (2)$$

where  $P(z)$  is a diagonal polynomial matrix, and the primitive  $G_{ij}(\lambda)$  elements of matrix  $g(\lambda)$  satisfy the condition

$$\omega_{ij}(\delta) = \sup_{\lambda, |h| < \delta} |\Delta_h^2 G_{ij}(\lambda - h)| \times |\Delta_h G_{ij}(h) \cdot \Delta_h G_{ij}(h)|^{-1/2} \rightarrow 0, \delta \rightarrow 0,$$

where the operation  $\Delta_h f(x) = f(x+h) - f(x)$ .

Conversely, (2)  $\Rightarrow$  (1) if additionally  $\det g(\lambda) > m > 0$  (condition 3), the  $g_{ij}(\lambda)$  are bounded, and  $\sum \omega_{ij}^2(2^{-k}) < \infty$ .

It is shown for processes of complete rank that: a)  $\rho(\tau) = O(\tau^{-\alpha})$ ,  $\alpha = [\alpha] > 0$  is equivalent to three conditions: (2), (3), and the elements of matrix  $g(\lambda)$  have derivatives of order  $[\alpha]$  with Hölder index  $\alpha - [\alpha]$ ; b)  $\lim_{\tau \rightarrow \infty} (\rho(\tau))^{1/\tau} < \exp\{-\delta\}$  is equivalent to analyticity of  $f(z)$  in the zone  $|\operatorname{Im} z| < \delta$ . Analogous assertions are confirmed for degenerate processes.  
G. Molchan.



USSR

IBRAGIMOV, I. A., and ROZANOV, Yu. A.

"On the Relationship Between Two Characteristics of the Dependence of Gaussian Random Vectors"

Moscow, Teoriya Veroyatnostey i Yeye Primeneniya, Vol 15, No 2, 1970, pp 304-309

Abstract: The following theorem is proved: let  $\xi = (\xi_1, \dots, \xi_n)$  and  $\eta = (\eta_1, \dots, \eta_m)$  be Gaussian random vectors with distributions  $P_1(dx)$  and  $P_2(dy)$  and the joint distribution  $P_{12}(dxdy)$ .  $I_{\xi_n} = I$  denotes the amount of information contained in the random vector  $\xi$  relative to  $\eta$ . It is also assumed that

$$V_{\xi_n} = V = \text{Var}[P_{12} - P_1 \times P_2].$$

The quantities  $I$  and  $V$  are non-negative ( $0 \leq I \leq \beta$ ,  $0 \leq V \leq 1$ ), so that both quantities  $I$  and  $V$  reduce to zero if and only if the vectors  $\xi$  and  $\eta$  are independent; consequently, the quantities  $I$ ,  $V$  may be considered as quantitative characteristics of the dependence of the vectors  $\xi$  and  $\eta$ . Theorem: For Gaussian random vectors, with  $V \rightarrow 0$ ,

$$8/\pi^2 = \lim_{V \rightarrow 0} V^2/I < \overline{\lim}_{V \rightarrow 0} V^2/I = 4/\pi.$$

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IBRAGIMOV, I. I., Academician of the Azerbaydzhan SSR Academy of Sciences,  
GADZHIYEV, A. D., Institute of Mathematics and Mechanics, Azerbaydzhan SSR  
 Academy of Sciences, Baku

"Concerning the Order of Convergence of Cauchy-Stieltjes-Type Singular  
 Integrals"

Moscow, Doklady Akademii Nauk SSSR, Vol 212, No 1, 1 Sep 73, pp 23-26

Abstract: Let  $\Gamma$  be a closed rectifiable Jordan curve of length  $l$  on the  
 plane of complex variable  $z$ . Let us denote by  $\phi$  the angle between the  
 positive direction of the X-axis and the tangent to  $\Gamma$  at a given point  
 (the tangent obviously exists at almost all points of  $\Gamma$ ). Let  $f(s)$  be a  
 complex function of arc  $s$ , this function having bounded variation on seg-  
 ment  $[0, l]$ . Writing out the parametric equation of curve  $\Gamma$  in the form  
 $x = x(s)$ , the authors examine an integral of the Cauchy-Stieltjes type

$$K(z) = \frac{1}{2\pi i} \int_0^l \frac{e^{i\phi} df(s)}{x(s) - z} = \frac{1}{2\pi i} \int_0^l \frac{e^{i\phi(s)} df(s)}{x(s) - z}.$$

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IBRAGIMOV, I. I., GADZHIYEV, A. D., Doklady Akademii Nauk SSSR, Vol 212,  
No 1, 1 Sep 73, pp 23-26

It has been proved previously that the difference in the values of an integral of the Cauchy-Stieltjes type inside and outside of  $\Gamma$  approaches  $f'(s_0)$  for all points of the line  $\Gamma$ , with the possible exception of a set of zero measure where  $z \rightarrow \Gamma$  (from the inside and from the outside). In this paper the authors use a method based on the properties of singular integrals to establish the order of convergence of integrals of the Cauchy and Cauchy-Stieltjes types.

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USSR

UDC 517.537

IBRAGIMOV, I. I., Academician of the Academy of Sciences Azerbaydzhan SSR, and AKHMEDOV, T. G., Institute of Mathematics and Mechanics, Academy of Sciences Azerbaydzhan SSR, Baku

"On the Point Set of Absolute Convergence of Some Stieltjes Integrals With a Complex Parameter"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 524-527

Abstract: The article determines the point set of absolute convergence of the Stieltjes integral

$$I(z) = \int_{-\infty}^{\infty} z^{\gamma(t)} e^{-it(t)} dA(t)$$

assuming that  $\varphi(t) = \varphi_1(t) + i\varphi_2(t)$  and  $f(t) = f_1(t) + if_2(t)$  are complex functions of a real variable,  $\varphi_1(t) = \operatorname{Re}\varphi(t)$  is an odd function,  $f_1(t)$  and

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IBRAGIMOV, I. I., and AKHMEDOV, T. G., Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 524-527

$f_2(t)$  are monotone positive functions,  $z^{\varphi(t)}$  is one of the branches of the function  $e^{\varphi(t)I_1 z}$  single-valued in the plane  $z$  with a cut along the negative part of the real axis, and  $\Lambda(t)$  is a complex-valued function of variation constraints on any finite segment of the real axis. In addition, the set on which the integral  $I(z)$  does not converge absolutely is determined.

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USSR

UDC: 517.512.6

~~IBRAGIMOV, I. I.~~, Academician of the Azerbaijan Academy of Sciences,  
~~GADZHIYEV, A. D.~~, and SHAKHVERDIYEV, V. M.

"Monotonicity Conditions of a Sequence of Derivatives of the Gel'fand-Bernshteyn Polynomials"

Moscow, Doklady Akademii Nauk SSSR, vol. 199, No. 4, 1971, pp 762-765

Abstract: The authors note that by successfully determining the monotonicity of a sequence of derivatives of the generalized polynomials of A. O. Gel'fand and S. N. Bernshteyn, the results can be applied to problems involving the numerical integration of differential equations. They begin their investigation by offering and proving a basic theorem for the difference between the derivatives of two successive polynomials in the sequence, which enables them to establish its monotonicity. Their notation for the sequence of derivatives is  $\{\Gamma_n'(f;x)\}$ . They also derive corollaries of this theorem regarding the convergence properties of the sequence and an alternate method for expressing the difference between two successive derivatives in it. The authors are members of the Institute of Mathematics and Mechanics in Baku.

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UDC 517.537

IBRAGIMOV, I. I., Academician of the Azerbaydzhan SSR Academy of Sciences,  
ARSHON, I. S.

"Completeness of Some Systems of Analytical Functions"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 5, 1971, pp 1010-1013

Abstract: The following problem is considered: let two systems

$$\{\varphi_n(z)\}, \{\psi_n(z)\} \quad (n = 0, 1, \dots) \quad (1)$$

regular in some domain  $\mathcal{D}$  of functions  $\varphi_n(x)$  and  $\psi_n(z)$  be given. It is assumed that each of these systems is complete in the domain  $\mathcal{D}$ , a sequence  $\{v_s\}$  ( $s = 0, 1, \dots$ ) of numbers  $v_n$  is given, and a new system  $\{f_n(z)\}$  is constructed by the rule

$$\{f_n(z)\} \equiv \{\varphi_n(z)\} \cup \{\psi_{v_s}(z)\} \quad (n \neq v_s; n, s = 0, 1, \dots). \quad (2)$$

What can be said regarding the domain of completeness of the mixed system

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IBRAGIMOV, I. I., et al., Doklady Akademii Nauk SSSR, Vol 197, No 5, 1971, pp 1010-1013

(2) as a function of the method of selecting the sequence  $\{v_n\}$  and the nature of the functions making up the generating systems (1). The comparatively simple case in which  $\phi_n(z) = z^n$  and  $\psi_n(z) = z^{nF(n)}(z)$  is considered, where  $F(z)$  is a function which is regular in the circle  $|z| \leq r$ ,  $1 < r < \infty$  or it is an integral function. The mixed system has the form

$$\{f_n(z)\} = \{z^n\} \cup \{z^{v_s F(v_s)}(z) \quad (n \neq v_s; n, s = 0, 1, \dots). \quad (3)$$

Four theorems and some lemmas are proved, and another interesting problem is considered in which  $F(z)$  is an integral function of the exponential type and  $a_{\{v_n\}}$  is the radius of completeness of system (3). The value of

$$a[F] = \inf_{\{v_n\}} a_{\{v_n\}}$$

is found.

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UDC 517.537

IBRAGIMOV, I. I., Academician of the Academy of Sciences Azerbaydzhan SSR, Institute of Mathematics and Mechanics, Academy of Sciences Azerbaydzhan SSR, Baku

"On the Completeness of a System of Analytic Functions"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 2, 1970, pp 272-275

Abstract: Let the system of functions  $\{\varphi_n(z)\}$ , regular in region D, be complete in this region. In order for the system of functions  $\{\psi_n(z)\}$  to be complete in region D, it is necessary and sufficient that for each function  $\varphi_m(z)$  there exist a sequence of linear combinations of functions  $\psi_n(z)$  which uniformly converges to the function  $\varphi_m(z)$  ( $m = 1, 2, \dots$ ) in region D. If D is a simply-connected region containing no infinitely remote point, the system  $\{z^n\}$  ( $n = 0, 1, \dots$ ) can be taken as the system  $\{\varphi_n(z)\}$ .

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IBRAGIMOV, I. I., Doklady Akademii Nauk SSSR, Vol 193, No 2, 1970, pp 272-275

in this completeness criterion. If the system of functions  $\{p_n(z)\}$ , regular in simply-connected region  $D$ , is complete in this region, it is also complete in any simply-connected subregion of region  $D$ , especially in each component of the intersection of region  $D$  with any circle.

Let  $A(D)$  be the set of all functions regular in region  $D$ . The system of functions  $\{\varphi_n(z)\}$ , regular in region  $D_* \subset D$ , is said to be complete in the class  $A(D)$  on region  $D_*$  if for any function  $f(z) \in A(D)$  there exists a sequence of linear combinations of the functions  $\{\varphi_n(z)\}$  which uniformly converges to the function  $f(z)$  in region  $D_*$ . It follows that the system of functions  $\{\varphi_n(z)\}$ , complete

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IBRAGIMOV, I. I., Doklady Akademii Nauk SSSR, Vol 193, No 2, 1970, pp 272-275

in class  $A(D)$  on the region  $D_* \subset D$ , is complete in region  $D_*$  if the regions  $D$  and  $D_*$  are simply connected.

The article proves two theorems on the completeness of a system of analytic functions of the form  $\{F(z, \alpha_n)\}$ , where  $\{\alpha_n\}$  is a sequence of complex numbers.

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BERASHENOV, I. I., Academician Azerbaijan SSR Academy of Sciences,  
GABDILAYEV, A. I.

"A Sequence of Linear Positive Operators"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 6, 1970, pp 1222-1225

Abstract: A sequence of linear positive operators of the most general form, containing the operators of S. N. Bernstein, Lashin-Rilodovskiy, G. Mirak'yan, V. A. Baskakov, and others, as particular cases, is constructed. Problems of the uniform convergence of these operators in the class of the continuous functions  $C/\bar{C}, A/\bar{A}$ , where  $A \geq 0$  is a given number, are considered and the peculiarities of the functions' convexity or concavity are studied. Proof that the operators named above are particular cases of the sequence is presented, and some theorems regarding the convergence of the sequence are derived.

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USSR

UDC: 517.537

IBRAGIMOV, I. I., Academician of the Azerbaijan Academy of Sciences

"A Method of Investigating the Completeness of Analytic Function Systems"

Moscow, Doklady Akademii Nauk SSSR, 1 January 1973, pp 36-38

Abstract: This paper considers the functions  $f(z)$  and  $F(z,u)$  and develops four theorems concerning their completeness. The first function is given as

$$f(z) = \sum_{n=0}^{\infty} a_n z^n, \quad a_n \neq 0, \quad n = 0, 1, 2, \dots,$$

and is an integral function. If  $\{\varphi_k(z)\}$  is a sequence of functions from the totality  $A(|z| \leq k)$ , and  $\{\alpha_k\}$  is a sequence of complex numbers,  $F(z,u)$  is determined by

$$F(z,u) = \sum_{k=0}^{\infty} \varphi_k(z) u^k.$$

It is assumed that both functions satisfy the condition  
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UDC: 517.537

IBRAGIMOV, I. I., Doklady Akademii Nauk SSSR, No 1, 1973, pp 36-38

$$\overline{\lim}_{n \rightarrow \infty} \left( \max_{|z| \leq R} \left| \frac{\varphi_n(z)}{a_n} \right| \right)^{1/n} = \sigma_0 (< +\infty).$$

UDC: 517.512

USSR

IBRAGIMOV, I. I., Academician of the Azerbaijan Academy of Sciences  
and TRUKACHEV, V. N.

"An Extremal Problem in a Class of Integral Functions of Finite Degree"

Moscow, Doklady Akademii Nauk SSSR, 1 February 1973, pp 768-770

Abstract:  $B_\sigma$  is a class of integral functions of finite degree  $\leq \sigma$  satisfying the condition

$$\sup_{-\infty < x < +\infty} |f(x)| < +\infty,$$

and  $W_\sigma^{(p)}$ ,  $p \geq 1$ , is a class of integral functions from  $B_\sigma$  for which

$$\|f\|_p = \left( \int_{-\infty}^{\infty} |f(x)|^p dx \right)^{1/p} < +\infty.$$

$W_\sigma^{(p)}$  is a set of functions  $f(z) \in W_\sigma^{(p)}$  which are nonnegative on the real axis and  $\tilde{B}_\sigma$  is a set of functions from  $B_\sigma$  monotonic for  $1/2$

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UDC: 517.512 .

IBRAGIMOV, I. I., et al, Doklady Akademii Nauk SSSR, No 4, 1973, pp 768-770

$(R) = (-\infty, +\infty)$ .  $\tilde{B}$  is the totality of functions  $f(z) \in \tilde{B}_\sigma$ , subject to the conditions  $f'(\alpha_\nu) = \beta_\nu$ ,  $\nu = 1, \dots, n$ ; where  $\alpha_1, \dots, \alpha_n$ ;  $\beta_1, \dots, \beta_n$  are given real numbers,  $\beta_i \geq 0$ ,  $i = 1, \dots, n$ . The purpose of this paper is to find in class  $\tilde{B}$  the so-called extremal function  $f_0(z)$  which satisfies the relation

$$\|f_0\|_C = \inf_{f \in \tilde{B}_\sigma(n)} \|f\|_C .$$

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--KINETICS OF THE CONDENSATION OF UREA WITH BUTYRALDEHYDE -U-

AUTHOR--(02)-IBRAGIMOV, K.KH., RUSTAMOV, KH.R.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44 (6), 1563-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, CONDENSATION REACTION, UREA, ALDEHYDE,  
BUTYRIC ACID, ACTIVATION ENERGY, CATALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD7C/605012/F03 STEP NO--UR/0076/70/044/006/1563/1565

CIRC ACCESSION NO--AP0140329

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140329

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE CONDENSATION OF UREA WITH BUTYRALDEHYDE WAS STUDIED UNDER STATIC CONDITIONS IN THE PRESENCE OF A SOL<sup>n</sup>. OF ALKALI OR OF ION EXCHANGE RESINS. THE HEAT OF THE REACTION AND ITS ACTIVATION ENERGY WERE INDEPENDENT OF THE CATALYSTS. THE MECHANISM OF THE CATALYSIS WAS IDENTICAL FOR BOTH HOMOGENEOUS AND HETEROGENEOUS REACTION PATHS. THE REACTION WAS FIRST ORDER IN ALK. FUNCTION. FACILITY: TASHKENT, POLITEKH. INST., TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC: 621.314.26'088.8)

IBRAGIMOV, Kh. Yu., Leningrad Electrical Engineering Institute of Communications

"A Balanced Frequency Converter Based on Diodes"

USSR Author's Certificate No 262187, filed 27 Dec 68, published 20 May 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D51 F)

Translation: This Author's Certificate introduces a frequency converter which contains two differential transformers. To ensure balancing without selecting semiconductor diodes, and at the same time to eliminate regulation during operation, the half-windings of the differential output transformer are connected in opposition. The semiconductor diodes are connected to each transformer by electrodes of opposite polarity, and the source of the signal to be converted is connected to the centertaps of the windings of both transformers.

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Veterinary Medicine

USSR

UDC 619:615.93.578.082

IBRAGIMOV, Kh. Z., Professor, and KHABITIEV, M. S., Assistant, Samarkand Agricultural Institute

"The Effect of Smut Intoxication on Laboratory Animals"

Moscow, Veterinariya, No 8, 1970, pp 77-78

Translation: In a number of oblasts in the Uzbek SSR, Ustilagotoxicosis is observed in animals which have eaten barley infected with smut (Veterinariya, No 9, 1968). Each year, 10-15% of barley is infected with smut. According to the data of S. Yu. Yunusov (1965), barley smut contains 1.05 to 1.3% water-soluble alkaloids. Investigations have shown that these alkaloids are toxic to warm-blooded animals. Analysis of data concerning the toxicity of barley smut for various animals, especially newly weaned pigs, and the large percentage of sterile animals on farms in the Uzbek SSR led us to study the effects of smut on the embryonic and postembryonic development of laboratory animals. The effects of aqueous extracts of barley smut alkaloids were investigated using 45 female white mice divided into six groups. The first, second, and third groups consisted of 10 mice each, while the fourth, fifth, and sixth groups (controls) consisted of five mice each. In the first three groups, the animals received subcutaneous injections of 0.0005, 0.0025, and 0.005 grams during the period 20 days

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IBRAGIMOV, Kh. Z., et al, Veterinariya, No 8, 1970, pp 77-78

prior to and 20 days after mating. Animals in the fourth group received 0.01 grams for 10 days, and those belonging to the fifth group, 0.01 grams for 15 days after mating. Mice in the control (sixth) group received subcutaneous injections of 0.5 ml of physiological saline for 20 days. The experimental results were recorded as observations of the behavior of mice, periods of pregnancy, the number of mice in one litter and their average weight at the age of 1 month, and the condition of the uterine horns in dead and autopsied mice. One mouse which received 0.0005 grams of the alkaloids prior to mating had a pregnancy prolonged up to 20 days. One mouse which received this dose during pregnancy died on the 28th day after mating. Administration of 0.0025 grams of the alkaloids prior to mating delayed labor up to 20 days in three mice and up to 2 months in one mouse. Administration of the same dose during pregnancy resulted in the death of one mouse on the 32d day after mating, and delayed labor by 14 days in another. Administration of 0.005 grams of barley smut alkaloids prior to mating delayed labor up to 30 days in three mice and caused the death of one mouse on the 18th day. Injections of 0.005 grams during pregnancy resulted in the death of one mouse on the 17th day of the experiment, delayed labor by 2 months in one mouse, and delayed labor by 12 days in two mice. As a result of injecting 0.01 of the alkaloids

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IBRAGIMOV, Kh. Z., Veterinariya, No 8, 1970, pp 77-78

during the 10 days prior to mating, no mouse gave birth for 2 to 3 months. Autopsy revealed a thickening of the uterine horns and the presence of constrictions in them! After injections of 0.01 for 15 days prior to and 10 days after mating, two mice became infertile for 2 months, while two other mice became ill and died on the 13th and 18th days of the experiment. Dysfunction of the central nervous system and increased respiratory rates were observed in the ill mice. An autopsy performed on the dead mice revealed macerated embryos in the uterine horns and a marked vascular reaction in internal organs, especially in the mesentery. The number of embryos in a litter in the experimental mice was about 32% less than in the control mice. The average weight of 1-month-old mice in the experimental group was 14% less than that in the control group. Experiments on Rabbits. Tests were performed on 30 female rabbits divided into five groups: the first, third, fourth, and fifth groups included five animals each, while the second group included 10 rabbits. The first four groups were experimental, the fifth group was a control. The experimental rabbits were fed 10 per day of crude barley smut mixed with their regular fodder in a ratio of 1:10. The first group was fed this ration for 30 days after mating; the second group, for 15-20 days prior to and 20-30 days after mating; the third group, for 15 days after mating; and the fourth group, for 15 days beginning with the 16th day after mating. The results

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IBRAGIMOV, Kh. Z., et al, Veterinariya, No 8, 1970, pp 77-78

were recorded in the form of periods of birth, number of rabbits born in one litter, and their general development up to the age of 2 months. The experiments showed that the addition of barley smut to regular fodder during pregnancy causes no clinical disturbances in the pregnancy. However, feeding smut for 20 days prior to mating and during pregnancy disturbed the sexual cycles in two female rabbits and caused the death of two (out of 10): one died on the 17th day after mating (34th day of the experiment) and the other on the 28th day after mating (48th day of the experiment). Autopsy revealed macerated embryos in the uterine horns. The number of rabbits per litter in the experimental group was 34% less than in the control group. In the experimental group, the death rate of rabbits up to the age of 1 month was 2.5 times greater than in the control group. Their body weight was 37% less at the age of 1-2 months, 10% less at the age of 3 months and 9% less at the age of four months than in the corresponding controls.

#### Conclusions

1. In female mice, subcutaneous injections of 0.0005 to 0.01 g of barley smut alkaloids during the 20 days prior to and 20 days after mating induces a chronic

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IERAGIMOV, Kh. Z., et al, Veterinariya, No 8, 1970, pp 77-78

intoxication which disturbs the reproductive process (delayed labor) and causes death of offspring, sterility, a reduction in the number of mice per litter, and poor growth of progeny.

2. Smut alkaloids administered to female mice in doses of 0.01 g during the 10 days prior to and 10 days after mating induce a subacute and a chronic intoxication, resulting in death or sterility of the mice.

3. When female rabbits are fed 10 g of barley smut per day for 15-20 days prior to mating and for 20-30 days during pregnancy, their fertility is decreased, the embryos become macerated and die, and the number of rabbits born in a litter is decreased.

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USSR

UDC 532.517

MILLIONSHCHIKOV, M. D., Academician, SUBBOTIN, V. I., Corresponding Member of the Academy of Sciences USSR, IBRAGIMOV, M. KH., TAPANOV, G. S., and KOBZAR', L. L.

"Experimental Study of Turbulent Flow in Pipes With Artificial Wall Roughness"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 6, 1972, pp 1292-1295

Abstract: The authors studied turbulent flow in circular pipes with regular, artificially created wall roughness. The roughness was created by cutting single and multiple cross threads and circular recesses on the inside surface of Duralumin pipes. There were 15 variants. The experiments were conducted in air ( $Re = 5000-200,000$ ) and water ( $Re = 70,000-1 \cdot 10^6$ ). It was found that the dependence of the resistance coefficient on the Reynolds number for the investigated types of rough surfaces differs from the relations obtained for sand-grain roughness or for commercial rough pipes. There was found to be an earlier hydraulic appearance of roughness. In most cases this effect occurs at  $u_{\tau}k/\nu < 3$ , where  $u_{\tau}$  is the dynamic velocity,  $k$  the height of the roughness elements,  $\nu$  the fluid viscosity. At Reynolds numbers ranging

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MILLIONSHCHIKOV, M. D., et al., Doklady Akademii Nauk SSSR, Vol 207, No 6, 1972, pp 1292-1295

up to  $10^6$  practically no interval is observed where a square resistance law would occur, in which  $\lambda$  for one and the same type of thread is determined only by the relative roughness height. The mean relative height of the roughness elements is far from being the complete characteristic of a rough surface. The resistance coefficient is considerably influenced by the pitch of the mutual arrangement of the roughness elements and their shape. Further studies are under way to determine the mechanism of the interaction between turbulent flow and roughness elements and to obtain generalizing relations and develop calculation procedures.

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USSR

UDC. 532.517

MILLIONSHCHIKOV, M. D., Academician; SUBBOTIN, V. I., Corresponding Member USSR Academy of Sciences; IBRAGIMOV, M. Kh.; TARANOV, G. S.; KOBZAR', L. L.

"Experimental Investigation of the Turbulent Current in Tubes With Artificially Roughened Walls"

Moscow, Doklady Akademii Nauk SSSR, vol 207, No 6, 1972, pp 1292-1295

Abstract: Asserting that the experimental and theoretical work on tubes with roughened walls lags behind similar analysis of currents in tubes with smooth walls, the authors describe experiments they performed to investigate turbulent flow in circular tubes of accurate design and with artificially roughened walls, the latter being created by cutting the inner surfaces of the duralumin with grooving and threading devices. The method of cutting is described in some detail, and a table of variants of these roughened tubes, showing diagrams of the cuts and their parameters, is given. The experiments were conducted with air and with water, the Reynolds numbers for each varying from 5000-200,000 and 70,000- $1 \cdot 10^6$  respectively. Curves for the resistance of the tubes with various

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MILLIONSHCHIKOV, M. D., et al, Doklady Akademii Nauk SSSR, vol 207,  
No 6, 1972, pp 1292-1295

types of cut along the inner walls are plotted. The authors recommend further research to help clarify the mechanism of current and wall interactions.

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1/2 054 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--DIFFUSION OF HEAT IN TURBULENT FLUID FLOWS WITH VARIOUS PRANDTL  
NUMBERS -U-  
AUTHOR--(02)--BOBKOV, V.P., IBRAGIMOV, M.KH.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOFIZIKA VYSOKIKH TEMPERATUR, VOL. 8, JAN.--FEB. 1970, P.  
106-110  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--TURBULENT FLOW, PRANDTL NUMBER, THERMAL CONVECTION, THERMAL  
DIFFUSION, BOUNDARY LAYER HEAT TRANSFER, AIR FLOW, FLOW ANALYSIS, WATER,  
TWO PHASE FLOW, METAL TUBE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/0385 STEP NO--UR/0294/70/008/000/0106/0110  
CIRC ACCESSION NO--AP0111578  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111578

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE APPLICABILITY OF THE THEORY OF TURBULENT DIFFUSION AND STATISTICAL CHARACTERISTICS OF A TURBULENT FLUID FLOW IN CALCULATING THE COEFFICIENTS OF TURBULENT HEAT DIFFUSION IN A FLOW OF AIR AND WATER IN A TUBE. FORMULAS ARE PROPOSED FOR CALCULATING THESE COEFFICIENTS OVER THE ENTIRE CROSS SECTION OF SUCH FLOWS AT PRANDTL NUMBERS FROM 0.01 TO 10 AND REYNOLDS NUMBERS FROM 10K TO M. THE EXTRAPOLATION MODEL PROPOSED FOR EXTENDING THE DIFFUSION METHOD INTO THE BOUNDARY LAYER OF SUCH FLOWS IS SHOWN TO AGREE WITH AVAILABLE EXPERIMENTAL RESULTS. FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIJU ATOMNOI ENERGII, FIZIKO ENERGETICHESKII INSTITUT, OBNINSK, USSR.

UNCLASSIFIED

Acc. Nr.: AP0042371**IBRAGIMOV****N.B.**Ref. Code: 1120454

JPRS 50162

Spectrophotometric Study of Details on Venus

(Abstract: "Spectrophotometric Investigation of Details on Venus," by N. B. Ibragimov, Shemakhinskaya Astrophysical Observatory, Academy of Sciences Azerbaydzhan SSR; Moscow, Astronomicheskiy Vestnik, Vol IV, No 1, 1970, pp 31-33)

During June-July 1967 about 20 spectrograms of Venus were obtained at the Shemakhinskaya Astrophysical Observatory in the Cassegrainian focus of a 2-m telescope using a prism spectrograph (dispersion 93 Å/mm at Hγ) with different positions of the slit relative to the intensity equator. Slit width was 0.05 mm. Spectrograph magnification was 0.2 so that the resulting spectrograms were sufficiently wide for processing the spectrum of detail on the planetary disk. The spectra were photographed on Kodak Oa0 plates, making it possible to investigate the region  $\lambda$ 3700-5100 Å. During observations atmospheric transparency was so good that the diameter of Venus computed from the spectrograms differed from the ephemeris by only 0".5. On the spectrograms obtained on 17 June with orientation of the spectrograph slit along the line of horns there were dark and light details; the dark detail was near the horn and the light detail was near the middle zone of the terminator. This paper gives the results of processing of one

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of these spectrograms on which these details are visible: the dark detail stands out clearly in the entire spectrum whereas the light detail stands out only in the short-wave part of the spectrum and gradually disappears at 4400 Å. It is shown that with a decrease in wavelength the size of the details changes; for the dark detail the size decreases, whereas for the light detail it increases. The relative distributions of brightness of details in the spectrum relative to the adjacent region of the Venusian disk in this same part of the continuous spectrum were also measured. Examination of the curves expressing these distributions revealed that to 4400 Å they are similar but beginning with 4400 Å in the direction of shorter waves their slope changes in opposite directions. It can be postulated that the bright details near the terminator are upper-level clouds illuminated by the sun's rays; the dark details can be gaps in the cloud layer or clouds with particles of different size or properties.

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USSR

UDC 535.34:539.213.27

ABDULLAYEV, G. B., MAMEDOV, SH. V., ABUTALYBOVA, Z. M., IERAGTIOV, N. I., and  
VOLCHENKOV, YE. YA., Institute of Physics, Academy of Sciences Azerbaydzhan  
SSR

"On Some Peculiarities of IR Absorption of Amorphous Selenium"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-  
Tekhnicheskikh i Matematicheskikh Nauk, No 4, 1971, pp 100-113

Abstract: The authors undertook to elucidate those peculiarities of the selenium IR spectrum which are related to its preheat treatment. The initial material was amorphous powdered selenium, purity 99.9999 percent (V-5). Three series of samples were fabricated; viz., (1) from V-5 selenium evacuated to  $p \leq 10^{-4}$  mm Hg, (2) from selenium with 0.05 mol. percent  $I_2$ , and (3) from selenium with 0.05 at. percent Tl. All samples underwent heat treatment in the 280-700° C range. The IR spectra display bands at 3.5, 4.6, 9.0, 13.5, 16.0, 20.4 microns depending on  $T_{tr}$ , with the 20.4-micron band strongest, 13.5

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USSR

ABDULLAYEV, G. B., et al., Izvestiya Akademii Nauk Azerbaydzhanskoj SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 4, 1971, pp 100-113

medium strong, and the rest weak. The optical density of bands at 20.4, 13.5, and 16.0 microns is constant for all  $T_{tr}$ , while the  $T_{tr}$ -dependence of the optical density of bands at 3.5, 4.6, and 9 microns is of an extremal character.

It was found for the first time that the degree of transmission (background) depends on  $T_{tr}$ . There are two types of background: 1) general background and (2) background increasing in the direction of the short-wave region of the spectrum. The behavior of both backgrounds is of a regular character. The likeliest cause of the appearance of background is the Tyndall effect. General background may be due to scattering by large supramolecular formations, the second background to the Rayleigh-Jeans mechanism. The previous temperature history, along with the crystallization temperature, has a significant effect

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USSR

ABDULLAYEV, G. B., et al., Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 4, 1971, pp 100-113

on the selenium crystallization process and the structure of the resultant material. In the molten state selenium is a structurized system, and the growth of small crystals from such a melt may occur by the addition of ordered aggregates of macromolecules.

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Electricity & Magnetism

USSR

UDC 539. 239. 538. 113

ABDULLAYEV, G. B., IBRAGIMOV, N. I., and IBADOV, A. KH., Institute of Physics

"Paramagnetism of Selenium As Affected by Heat Treatment Time at Various Temperatures"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, Vol 26, No 8, 1970, pp 17-20

Abstract: A previous study by the authors considered the effect of heat treatment on the formation of paramagnetic centers in selenium with fixed treatment times. The present article describes results of a study of EPR absorption in selenium at various treatment temperatures  $T_{tr} \leq 550^{\circ}\text{C}$  as a function of the treatment time ( $t_{tr}$ ). Amorphous V-5 brand selenium was used for the study. It was found that the paramagnetic center concentration  $N$  increased with time at each  $T_{tr}$ , reaching a certain steady value at  $t_{tr} \approx 5$  hr. This limiting value  $N_{max}$  is determined by  $T_{tr}$ . A study of variations in the width  $\Delta H_m$  of the EPR signal with heat treatment time for various  $T_{tr}$  shows that up to  $T_{tr} \leq 450^{\circ}\text{C}$   $\Delta H_m$  remains within 5-6 oe regardless of the treatment time. For an entire group of specimens, despite variations in

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ABDULLAYEV, G. B., et al, Doklady Akademii Nauk Azerbaydzhanskoy SSR, Vol 26, No 8, 1970, pp 17-20

their N over the wide range  $10^{15}$ - $10^{17}$  cm<sup>-3</sup>, the process of EPR signal broadening always begins at  $T_{tr} \gg 500^{\circ}\text{C}$ .  $\Delta H_m$  increased monotonically with time, reaching approximately 1 oe after 12 hours of exposure. The chain concentration as a function of temperature was also studied. An explanation is suggested for the increase in the concentration of paramagnetic centers with  $t_{tr}$ .

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1/2 031 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--DECOMPOSITION OF PARAMAGNETIC CENTERS IN SELENIUM -U-  
AUTHOR--(04)-ABDULLAYEV, G.B., IBRAGIMOV, N.I., MAMEDOV, SH.V., IBADOV,  
A.KH.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1), 97-100  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ELECTRON PARAMAGNETIC RESONANCE, POTENTIAL DIFFERENCE,  
ACTIVATION ENERGY, SELENIUM, PARAMAGNETIC METAL, CRYSTAL DEFORMATION,  
BROMINE, IODINE, OXYGEN, THALLIUM, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1983/1004

STEP NO--UR/0449/70/004/001/0097/0100

CIRC ACCESSION NO--AP0053924

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0053924  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. AN EPR STUDY WAS CARRIED OUT OF SE  
(PURITY 99.9999 AND 99.99PERCENT) WITH O, BR, I AND TL IMPURITIES AT T  
EQUALS 300-700DEGREEK. THE TEMP. DEPENDENCE OF THE CONCN. OF  
PARAMAGNETIC CENTERS (N) OBEYS THE FORMULA  $N \text{ EQUALS } N_{\text{SUBOIL}} -$   
 $\text{EXP}((\Delta E - K)(\theta' - \theta'_{\text{NEGATIVE1}} - T' - T'_{\text{NEGATIVE1}}))$ , WHERE  
THE ACTIVATION ENERGY,  $\Delta E$ , OF THE REVERSIBLE DECOMP. OF  
PARAMAGNETIC CENTERS IS 0.12, 0.24, AND 0.28 EV FOR O, BR, AND I, RESP.;  
 $\theta$  IS THE TEMP. AT WHICH THE PARAMAGNETIC CENTERS DECOMP. COMPLETELY.  
THIS  $\theta$  IS IDENTICAL WITH THE TEMP. AT WHICH THE CHAIN LIKE  
STRUCTURE OF LIQ. SE IS DESTROYED (I.E. IS SIMILAR TO 740DEGREEK). A  
CORRELATION IS FOUND BETWEEN  $\Delta E$  AND THE AFFINITY WITH THE ACCEPTOR  
MOL. ELECTRON,  $\phi$ :  $\Delta E \text{ EQUALS } 0.16\phi$ .

UNCLASSIFIED

UDC: 621.315.621.5

USSR

FEDCHENKO, Ye. D., IBRAIMOV, N. S., KUZ'MIN, Ye. N., ASTAKHOVA, G. I.

"X-Ray Structural Study of the Process of Aging of Piezoceramic Materials of the TsTS System"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 92-95 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V479)

Translation: An x-ray study was made of ninety-degree reorientation of domains in the process of natural aging of polarized piezoceramic specimens of the TsTS system. It is found that one of the principal physical mechanisms of aging is ninety-degree motion of the domain wall. It is shown how the number of ninety-degree reorientations of domains depends on the temperature of the specimen during polarization. Resumé.

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1 BRAGIMOV, R. SH.

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XIII-4. NEW METHOD OF OBTAINING MONOCRYSTALLINE LAYERS OF SILICON ON NONORIENTING SUBSTRATES

Article by L. A. Il'meno, A. G. Kilemko, A. V. Ryzanov, R. Sh. Bragimov, L. N. Alievskiy, Novosibirsk: Novosibirsk. III Sibirskiy po Poluprovod. i Vintez Poluprovodnikov. Kiselev, I. Plom, Moscow, 12-17 June 1972, p 1051

A new procedure has been developed for connecting monocrystalline plates of silicon to nonorienting substrates (ceramic) via an intermediate layer of solid solution (Ge + Si). The characteristic feature of the process of the process and its difference from soldering and plating consists in the fact that the transient layer (the solid solution of germanium with silicon) is monocrystalline. It has electrophysical and chemical properties close to the properties of the connected plate of silicon. The crystallization begins with the surface of the monocrystalline silicon plate and develops in the direction of the nonorienting substrates. This insures the monocrystalline nature of the transient layer of solid solution with respect to its entire thickness. The silicon layers obtained in this way on the nonorienting substrates withstand the usually used chemical, thermal and mechanical treatment (etching, polishing, cooling and heating from liquid helium to ordinary temperature) without any Si) treatment. The etch rates made demonstrated that the transient layer can have a thickness on the order of several microns. Thicknesses of the solid solution (Ge + Si) of 6-8 microns could be obtained experimentally. It was established that obviously the dislocation density in the silicon itself arises from the difference in coefficients of thermal expansion of the substrate and the silicon. The silicon layers were obtained on substrates of sapphire ceramic with a dislocation density of  $5 \cdot 10^4 - 1 \cdot 10^5 \text{ cm}^{-2}$ . On the basis of the experiments performed, the heating and cooling rate conditions of the layers were selected which do not lead to a noticeable variation of their electrical properties. Monocrystalline layers of silicon were obtained with a specific resistance to  $1,500 \text{ ohm-cm}$  and electron mobility to  $1,500 \text{ cm}^2/\text{per second}$  at room temperature. For all of the specimens, the particular scattering of the carriers and the absence of deep levels are characteristic.

USSR

UDC 621.039.50

TAKIBAYEV, ZH. S. and IRBAGIMOV, SH. SH., Members of the Academy of Sciences  
Kazakh SSR, BATIRBEKOV, G. A. and OKOLOVICH, V. N., Candidates of Physico-  
Mathematical Sciences

"The Modernized VVR-K Reactor and Its Contribution to the National Economy  
of Kazakhstan"

Alma-Ata, Vestnik Akademii Nauk Kazakhskoy SSR, No 2 (322), 1972, pp 15-26

Abstract: The VVR-K nuclear research reactor was put in operation in 1967.  
The modernization of the reactor core, control system, and safety devices  
resulted in:

1. Creation of 140-mm-diameter channel in the center of the core with a  
neutron flux of  $3 \times 10^{14}$  neutron/cm<sup>2</sup> x sec.
2. Increase of reactivity reserve which allows tests to continue for  
1.5-2 months without shutdown.

The following research work has been conducted:

1. Determination of neutron-physics characteristics.
2. Research on radiation physics and chemistry. The effect of nuclear  
radiation on properties of absorbents and catalysts was investigated.

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USSR

TAKTIBAYEV, ZE. S., et al., Vestnik Akademii Nauk Kazakhskoy SSR, No 2 (322), 1972, pp 15-26

3. Nuclear physics research. Nuclear and gamma-resonant scattering with short-life isotopes was investigated.

4. Activation analysis and production of isotopes.

The following research work is proposed for the future:

1. Effect of radiation on materials and processes. Radiation causes an increase of strength of many metals. Examples are given.

2. Use of radiation and radioactive isotopes in the national economy of Kazakhstan. About 90 isotopes used in USSR are obtained by radiation in the reactors. Radioactive method is the most sensitive for detecting impurities in materials.

3. Nuclear physics.

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USSR

UDC 669.24:620.187

IBRAGIMOV, SH. SH., and REUTOV, V. F.

"Electron Microscopic Investigation of Alpha-Particle-Irradiated Nickel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 6, Jun 70, pp 1268-1273

Abstract: Results are presented of the electron microscopic investigation of nickel irradiated with 42-44-Mev alpha-particles with an integral flow of  $3.9 \cdot 10^{17}$  alpha-particle/cm<sup>2</sup>. After irradiation, the formation of dislocation loops with a diameter of 100-1000 Å and an average density of  $10^{15}$  loops/cm<sup>3</sup> are observed on nickel. Heating of the object by an electron beam leads to the appearance of helium pores, the first appearing on the grain boundaries and dislocation lines. The shifting of gas pores and the growth connected with it are observed. The rate of shifting of pores in the presence of a temperature gradient is inversely proportional to their radius. The helium pores interact effectively with dislocations and hinder their movement. The authors thank V. M. Agranovich and E. YA. Mikhlin for useful advice and remarks in the course of the work and discussion of the results.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--HEMATITE CONCRETE FOR SHIELDING FROM HIGH NEUTRON FLUXES -U-

AUTHOR--(05)-DUBROVSKIY, V.B., IBRAGIMOV, SH.SH., KORENEVSKIY, V.V.,  
LADYGIN, A.YA., PERGAMENSHCHIK, V.K.  
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970. 28(3), 258-60

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CEMENT, NEUTRON SHIELDING, IRON ORE, MECHANICAL  
STRENGTH/(U)298 CEMENT, (U)2134 HEMATITE ORE, (U)298 HEMATITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/0752

STEP NO--UR/0089/70/028/003/0258/0260

CIRC ACCESSION NO--AP0131347

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131347

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IRRADN. OF HEMATITE CONCRETE (PREPD. USING CEMENT 298, HEMATITE ORE 2134, FINELY DISPERSED HEMATITE 298, AND H SUB2 O 300 KG, AND HAVING A BULK D. OF 3030 KG-M PRIME 3) WITH AN INTERGRATED DOSE OF 2.6 TIMES 10 PRIME 20 N-CM SUB2 AT 250DEGREES CAUSES EXPANSION OF THE SAMPLES BY 1.2-1.5PERCENT, BUT FURTHER INCREASED IN THE DOSE (LESS THAN OR EQUAL TO 6.1 TIMES 10 SUB20 N-CM SUB2) AND TEMP. OF IRRADN. (350-400DEGREES) REDUCES THE EXPANSION TO ONLY 0.7-0.9PERCENT. THE IRRADN. REDUCES THE WT. OF THE SAMPLES BY UP TO 4PERCENT AT A DOSE OF (5-6) TIMES 10 PRIME 20 N-CM SUB2 AND REDUCES SOMEWHAT THE THERMAL COND., MECH. STRENGTH, AND DEFORMATION MODULI OF THE CONCRETE.

UNCLASSIFIED

USSR

UDC 8.74

ASKEROV, CH. I., IBRAGIMOV, T. A., POPOV, A. S.

"Minimizing the Flow Charts of Algorithms Considering the Shift Distribution of the Operators"

V sb. Teor. kibernetika (Cybernetics Theory--collection of works), Kiev, 1971, pp 17-23 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V425)

Translation: A study is made of a method of minimizing the flow charts of algorithms considering the shift distribution of the operators. The flow chart represents a branched algorithmic process and contains the initial and final apex and the operator and logical apexes. By the preceding operator apexes we mean those from which there are paths in the flow chart not containing the operators leading to the given apex. By the shift distribution of the operators we mean the defined dependence of the logical apexes on the operator apexes. The corresponding minimization algorithm is presented which consists in the following. First, the apexes isolated from the beginning of the flow chart are eliminated. Then for each logical apex the operator apexes preceding it on the flow chart are found: if there are no such logical apexes on the paths from them, they are recorded in a list; if they exist, then depending on the situation the counter and the specially introduced characteristic of trafficability of the paths of the

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USSR

ASKEROV, CH. I., et al., Teor. kibernetika, Kiev, 1971, pp 17-23

logical apex assume the corresponding values; if the counter is equal to 2 (overflow), then the following logical apex is investigated; otherwise for each operator apex the list is checked to see whether the given logical apex belongs to the shift distribution. After investigating the entire flow chart, the entire process is repeated until the flow chart remains unchanged. It is noted that a similar problem of minimization can be stated for the algorithm flow chart. The program developed for the M-20 computer can operate in this case faster since the algorithm flow chart can be more tightly packed in the computer memory.

2/2



USSR

UDC: 8.74

ASKEROV, Ch. I., GAMIDOV, V. I., IBRAGIMOV, T. A.

"Minimization of the Number of States of a Microprogram Automaton"

V sb. Avtomaty i upr. setyami svyazi (Automata and Control of Communications Networks--collection of works), Moscow, "Nauka", 1971, pp 142-153 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V526)

Translation: There are various interpretations of logic systems of algorithms (LSA) in terms of finite automata distinguished by the fact that put into correspondence with each internal state are either the individual positions of the LSA, or the individual members or a group of simultaneously realized members of the LSA, or a group of consecutively realized members of the LSA which form a complex microcommand. In this paper, a method is proposed for forming complex microcommands with minimization of their number; this is accompanied by a slight increase in the number of checks of the logic conditions. Authors' abstract.

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USSR

UDC: 51:621.391

ASKEROV, Ch. I., IBRAGIMOV, T. A.

"Simplifying the Flowcharts of Algorithms With a Given Set of Unused Collections and Distribution of Shifts"

V sb. Diskretn. avtomaty i seti svyazi (Discrete Automata and Communications Networks--collection of works), Moscow, "Nauka", 1970, pp 70-73 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V393)

Translation: The authors discuss a method of simplifying the flowcharts of algorithms. The procedure is based on accounting for unused collections of values of the variables (logical conditions), and also on accounting for a given set of distributions of shifts. The method of simplifying algorithm flowcharts consists in finding for each logical condition a function which takes on the true value for those collections of any permissible sequence of collections on which this logical condition may be verified. The simplification is done on the algorithm flowcharts, which makes it more convenient for computerization. Accounting for unused collections and the distribution of shifts makes it possible to reduce the overall number of logical operations. In some instances this may mean that certain terms of the algorithm flowchart are unrealizable and therefore may be eliminated. G. Blokhina.

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USSR

UDC 681.3.001:313.5

ASKEROV, Ch. I., ~~YERAGIMOV, T. A.~~

"Simplification of Algorithm Flow Charts for a Given Set of Unused Sets and Given Shift Distribution"

V sb. Diskretn. avtomaty i seti svyazi (Digital Automata and Communications Networks — Collection of Works), Moscow, Nauka Press, 1970, pp 70-73 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 2, Feb 71, Abstract No 2B32)

Translation: A method of simplifying algorithm flow charts based on consideration of unused sets of values of variables (logical conditions) and a given set of shift distributions ( $N_1^0, N_1^1$ ) is investigated. The procedure for simplifying the algorithm flow charts consists in finding the function  $(p_j^{\uparrow t})^*$  for the logical condition  $p_j^{\uparrow t}$ . This function must assume the true value in the sets (from any allowable series of sets) in which the logical condition  $p_j^{\uparrow t}$  can be checked. Consideration of the unused sets and the shift distribution permits reduction of the total number of logical conditions. An example

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USSR

ASKEROV, Ch.I., et al., Diskretn. avtomaty i seti svyazi (Digital Automata and Communications Networks -- Collection of Works), Moscow, Nauka Press, 1970, pp 70-73

of simplification of algorithm flow charts is presented. The bibliography has 4 entries.

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USSR

UDC 517.446

IBRAGIMOV, V. A., Institute of Mathematics and Mechanics, Azerbaydzhan SSR  
Academy of Sciences

"Improving the Smoothness of Solutions to Quasi-Linear Elliptic Equations  
With Discontinuous and Rapidly Increasing Coefficient"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Series on Physical-  
Technical and Mathematical Sciences, No 2, 1973, pp 49-53

Abstract: In No 5 of this journal for 1971, the author and R. I. Alikhanova  
discussed the boundary value problem for quasi-linear higher-order elliptic  
equations with discontinuous and rapidly increasing coefficients in the  
Orlicz class, demonstrating the existence and uniqueness of a general solu-  
tion. This article considers increasing the smoothness of the solution to  
this problem.

The demonstration involves the proof of two theorems and two lemmas.  
The first theorem, demonstrating the existence of a solution within a certain  
Orlicz class, is proven by a method analogous to Galerkin's. The second  
is proven by the averaging method and the use of topological techniques.  
1/1

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USSR

UDC 621.315.592

IBRAGIMOV, V.YU., KOLCHANOVA, N.M., NASLEDOV, D.N., TALALAKIN, G.N.

"Special Feature Of Negative Photoconduction In Gallium Arsenide Crystals"

Fizika i tekhnika poluprovodnikov, Vol 6, No 1, Jan 1972, pp 53-57

Abstract: The paper considers the negative photoconduction which was observed in high-resistance n-type gallium-arsenide crystals (with concentrations of electrons of  $10^{10}$  --  $10^{11}$   $\text{cm}^{-3}$ ) during illumination by "impurity" light. Negative photoconduction occurred with electrical fields exceeding 100 v/cm. In order to account for negative photoconduction the mechanism of recombination with the participation of centers with a negative barrier is drawn. The temperature, lux-ampere, and other dependences of the photoconductivity are explained on the basis of the proposed model of the structure of the forbidden band of the crystal. Physicotechnical Institute imeni A.F. Ioffe, AS, USSR, Leningrad. Received by editors 19 Feb 1971; in finished rewording 17 May 1971. 4 fig. 14 ref.

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1/2 035 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--IMPURITY PHOTOCONDUCTIVITY IN GALLIUM ARSENIDE CRYSTALS -U-  
AUTHOR-(04)-KOLCHANOVA, N.M., MIRDZHALILOVA, M.A., NASLEDOV, D.N.,  
IBRAGIMOV, V.YU.  
COUNTRY OF INFO--USSR *I*  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 358-60  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PHOTOCONDUCTIVITY, GALLIUM ARSENIDE SEMICONDUCTOR,  
SEMICONDUCTOR IMPURITY, OPTIC SPECTRUM, RADIATION INTENSITY, CHROMIUM,  
ELECTRON TRANSITION, TEMPERATURE DEPENDENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/0085

STEP NO--UR/0449/70/004/002/0358/0360

CIRC ACCESSION NO--AP0105171

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105171

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IMPURITY PHOTOCOND., SIGMA SUBPH, OF CR DOPED GAAS WAS INVESTIGATED AT 77-300DEGREESK. THE MAX. AT 0.85 EV ON THE CURVE OF SPECTRAL DEPENDENCE OF SIGMA SUBPH BECOMES MORE DISTINCT AT LOWER TEMPS. THE POSITION OF THE MAX. CHANGES VERY SLIGHTLY WITH TEMP. THE CHARACTER OF THE DEPENDENCE OF SIGMA SUBPH ON INCIDENT PHOTON ENERGY AT 0.8-1.1 EV CANNOT BE EXPLAINED ONLY BY OPTICAL QUENCHING. IT IS POSSIBLE THAT 2 STAGE PHONON ASSISTED TRANSITIONS TAKE PLACE IN THE PHOTOEXCITATION AT SIMILAR TO 0.85 EV, E.G. ELECTRON TRANSITIONS FROM THE CR ACCEPTOR LEVEL TO A SHALLOW DONOR LEVEL, WITH SUBSEQUENT THERMAL EXCITATION INTO THE CONDUCTION BAND.  
FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED



1/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--THE INFLUENCE OF SCHIZOPHRENIC BLOOD SERUM ON THE ENZYMATIC  
ACTIVITY OF THE LIVER AND BLOOD LEUCOCYTES IN EXPERIMENTAL ANIMALS -U-  
AUTHOR--IBRAGIMOVA, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,  
VOL 70, NR 4, PP 581-584  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SCHIZOPHRENIA, BLOOD SERUM, ENZYME ACTIVITY, LIVER, LEUKOCYTE,  
GLUCOGENESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY FILE/FRAME--1988/1541

STEP NO--UK/0246/70/070/004/0581/0584

CIRC ACCESSION NO--APO106289

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

CIRC ACCESSION NO--AP0106289

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR STUDIED THE INFLUENCE OF THE SERUM OF PATIENTS WITH PERIODICAL AND CONTINUOUS FORMS OF SCHIZOPHRENIA ON THE FERMENTATIVE ACTIVITY (OXIDASE, PEROXIDASE, SUCCINATEDEHYDROGENASE, ADENOSINETRIPHOSPHATASE, PHOSPHORYLASE, ALKALOID AND ACETIC PHOSPHATASE) AND GLYCOGEN CONTENT IN THE BLOOD LEUCOCYTES AND LIVER OF EXPERIMENTAL ANIMALS. IT WAS DEMONSTRATED THAT THE SERUM OF PERIODICAL PATIENTS AS WELL AS WITH NUCLEAR FORMS OF SCHIZOPHRENIA BROUGHT ON SIMILAR BY TENDENCY, BUT DIFFERENT IN THEIR INTENSIVITY CHANGES IN THE ENZYMATIC ACTIVITY AND GLUCOGEN CONTENT. COMPARING THE INFLUENCE OF THE SERUM ON THE PHOSPHATASE ACTIVITY IN THE BLOOD LEUCOCYTES AND LIVER OF EXPERIMENTAL ANIMALS, IT WAS DISPLAYED THAT THE ACTIVITY OF ENZYMES CHANGED IN DIFFERENT DIRECTIONS. FOR INSTANCE, THE ACTIVITY OF ACETIC PHOSPHATASE IN THE BLOOD LEUCOCYTES INCREASED, WHILE AS IN THE LIVER IT BECAME LOWER. THUS, THE OBTAINED CYTOCHEMICAL CHANGES IN THE LEUCOCYTES OF THE PERIPHERAL BLOOD, AS WELL AS THE HISTOCHEMICAL AND MORPHOLOGICAL CHANGES IN THE LIVER, SPEAK IN FAVOR OF A MORE TOXIC REACTION, WHEN THE BLOOD SERUM OF PATIENTS WITH A CONTINUOUS FORM OF SCHIZOPHRENIA IS BEING INTRODUCED. CONSEQUENTLY, THE SERUM OF SCHIZOPHRENIC PATIENTS AND ESPECIALLY WITH NUCLEAR FORMS POSSESS PROPERTIES CAPABLE OF CHANGING THE ENZYMATIC ACTIVITY IN THE BLOOD LEUCOCYTES IN THE DIRECTION IDENTICAL TO THAT FOUND IN SCHIZOPHRENIC PATIENTS. THIS SERUM ALSO INHIBITS THE FUNCTIONAL POSSIBILITIES OF THE LIVER.

UNCLASSIFIED

USSR

UDC 678.742.66.081

AKIMEDZADE, D. A., MARKOVA, YE. I., IBRAGIMOVA, D. S., and  
DZHANIBEKOV, N. F., INKHP, Academy of Sciences Azerbaydzhan SSR

"Stabilization of Polypropylene by Certain Salts of O,O-Diphenyl-  
dithiophosphoric Acid"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 4, 1972, pp 98-101

Abstract: Ni, Co, Cd, Ba, Ca, and Mg salts of O,O-diphenyldithio-  
phosphoric acid were studied for their stabilizing effects on poly-  
propylene (brand 0.5P10/20). The salts were added to powder  
preparations of polypropylene to final concentrations of 0.5, 1.0,  
or 3.0 wt%, which were then subjected to 200 atm at 200°C to form  
0.2-0.4 mm thick plates. The effects of heat, aging, and light  
on these plates were then evaluated in terms of physicomachanical  
and rheological indexes, as well as on the basis of oxidation  
induction periods. The results confirmed previous studies that  
Ni, Co, and Cd salts were most effective in this respect, and  
that the optimal concentrations ranged from 0.5-1.0 wt%. Although  
even greater effectiveness was obtained with certain salts at a  
concentration of 3.0 wt%, the use of such high concentrations is  
contraindicated.

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USSR

KALUGINA, G. N., MATSNEVA, N. M., IBRAGIMOVA, F. I., NOSKOVA, V. A., ARONOVA, Ye.R.  
and YEVSTIGNEYEVA, O. F. Uzbek Scientific Research Institute of Hematology and  
Blood Transfusion

"The Effect of Certain Solutions of Synthetic Polymers on Formed Elements in  
Preserved Blood"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 6, 1970, pp 36-38

Abstract: The suitability of three synthetic polymers -- polyvinyl alcohol,  
carboxymethyl cellulose, and polyvinyl pyrrolidone -- for the preservation of donor  
blood was investigated. The results indicate that these substances prolong the life  
span and maintain a perfect physiological state of erythrocytes for up to 40-45  
days, of leukocytes up to 20-25 days, and of thrombocytes up to 5-7 days. These  
synthetic colloids also speed up the sedimentation rate of blood and thus make it  
possible to separate formed elements from plasma without undue trauma.

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USSR

UDC 661.183.3+547.724.1

MIRKAMILOVA, M. S., IPIAGHIEVA, G. T., and DZHALILOV, A. T., Tashkent  
Polytechnical Institute

"Synthesis and Investigation of Anion Exchange Resins Made From the  
Polycondensation Products of Furfural and Diamines"

Tashkent, Ustekskiy Khimicheskiy Zhurnal, No 5, 1970, pp 84-86

Abstract: The anion exchange resin was obtained by condensing furfural with p-phenylenediamine in presence of dimethylformamide and  $ZnCl_2$ . p-Phenylenediamine was dissolved at 60-70° in dimethylformamide in a three-neck flask equipped with a stirrer, reflux condenser and thermometer;  $ZnCl_2$  was added in an amount equal to 2% of the weight of the reagent. Then a freshly distilled furfural was added dropwise. The mixture was kept for 7-8 hrs at 80-85°, the dark gel-like material was placed in a dessicator kept at 110-115° and left there for 24 hrs. The mass solidified in the dessicator; it was ground, washed and dried. The exchange resin thus obtained proved to have good physico-chemical properties and high thermal stability.

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UDC 547.943

USSR

IBRAGIMOVA, M. U., YUNUSOV, M. S., and YUNUSOV, S. Yu., "Red Banner of Labor Order" Institute of Plant Chemistry, Uzbek SSR Academy of Sciences

"Alkaloids of *Corydalis Pseudoadunca* and *C. Gortschakovii*"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1970, pp 438-440

Abstract: From *C. pseudoadunca* taken during the fruitbearing and budding stages, and *C. gortschakovii* in the blossoming stage, 11 alkaloids were isolated by conventional methods. The alkaloids from *C. pseudoadunca* in the fruitbearing stage included d-bicuculline, d- $\beta$ -hydrastine, coramine, protapine, l-adlumidine (determined by IR), and l-scoulerine (IR). These same alkaloids were found in the extract of *C. pseudoadunca* in the budding stage, although in different concentrations. From *C. gortschakovii*, the alkaloids isolated were isocorydine, l-adlumine, d-bicuculline, protopine, sendaverine (IR), and a base melting at 240-242°. UV and IR data, melting points and gram amounts were also included in the report.

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USSR

IBRAGIMOVA, N. I., and SHUR, M. S., Chair of Nervous Diseases, Tashkent Medical Institute

"Clinical Picture of the Neuromuscular Form of the Hypothalamic Syndrome of Influenza Etiology"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 10, 1971, pp 15-17

Abstract: Patient K., 31, an accountant, was hospitalized in April 1969 because of extreme weakness, inability to walk, and loss of 22 kg, which began after he recovered from severe influenza in January 1969. Clinical tests revealed muscular atrophy and atonia, acrocyanosis, sinus bradycardia, small increase in intracranial pressure, intensified outline of cerebral blood vessels, moderate EEG changes suggesting pathology in central portions of the brain, decreased excitability of skeletal muscles, reduced muscle reflexes, absence of tendon reflexes, polydipsia, overhydration and edema, subfebrile temperature, protracted glucose tolerance curve, and disturbed protein metabolism. The diagnosis of the neuromuscular form of diencephalic pathology of influenza etiology was established, and the patient was treated with anti-infection, anti-inflammatory, and antidiuretic drugs, as well as vitamins and other stimulants. He improved rapidly, gained weight, in 10  
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USSR

IBRAGIMOVA, N. I., and SHUR, M. S., Meditsinskiy Zhurnal Uzbekistana, No 10, 1971, pp 15-17

days was able to walk independently, and all pathological symptoms gradually disappeared. He was discharged in June 1969. A follow-up examination 2 months later revealed complete recovery of muscle mass and strength, and he resumed his previous work.

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Acc. Nr: **AP0047225**

**I**

Raf. Code: UR 0216

**PRIMARY SOURCE:** Izvestiya Akademii Nauk SSSR, Seriya  
Biologicheskaya, 1970, Nr 1, pp 77-82

S. I. IBRAGIMOVA, N. M. NERONOVA

**INFLUENCE OF AN EXCESS OF A SUBSTANCE (LACTATE) ON THE  
DEVELOPMENT AND FORMATION OF VITAMIN B<sub>12</sub> BY PROPIONOBACTERIUM  
SHERMANII**

*Institute of Microbiology, Academy Sciences USSR*

The influence of various concentrations of lactate in the medium on the development of *Propionobacterium shermanii*, correlation of propionic and acetic acids as well as that of vitamin B<sub>12</sub> were studied under stationary growth conditions. Lactate added in large quantities to a 24 hours old culture causes a shift in the correlation of the acids formed with a prevalence of propionic acid resulting in a higher output of vitamin B<sub>12</sub> but 96 hours later it hinders further development of the bacteria as well as the final output of vitamin B<sub>12</sub> counting from the beginning of the experiment.

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REEL/FRA  
19790727

Ldh

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USSR

UDC 543.8

SHEYNNINA, R. I., DZHIYANEYEV, R. Kh., KHALIMOVA, U. Kh., TALIPOV, Sh. T., and IBRAIMOV, Ch. I., Tashkent State University imeni V. I. Lenin and the Middle Asia Branch of the All-Union Scientific Research Institute of Fats, Tashkent

"Kinetic Method for Determining Microgram Quantities of the Organophosphorus Compound Butifos"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 27, Vyp 8, 1972, pp 1643-1647

Abstract: Microgram quantities of butifos can be determined from its catalytic properties on the oxidation of benzidine, o-dimethoxybenzidine, and dimethylbenzidine by  $H_2O_2$ . The reaction is following photometrically. The dimethylbenzidine reaction is the most sensitive of the indicators as the methyl groups are stronger electron donors than the methoxy group. Conditions optimizing the reaction are examined. Trace amounts of butifos in the fibers and husks of cotton seeds were determined by this method.

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UDC 519.2

USSR

IBRAMKHALILOV, I. SH.

"Estimates of Functionally Related Parameters"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1972, vyp. 6, pp 60-73 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V113)

Translation: Let  $\xi_i$  be a sample of  $n$  independent random variables with the distribution function  $F(x, \theta)$  containing an unknown parameter  $\theta$  of an  $s$ -dimensional euclidian space  $R$ ,  $s = 1, 2, \dots$ . A study was made of the estimates of the distribution parameters in the case where the parameters are related to each other by certain functional relations  $f_i(\theta_1, \theta_2, \dots, \theta_s) = 0$ ,  $i = 1, 2, \dots, q$ ,  $q < s$ . Let the functions  $\phi_k(x, \theta)$  exist such that for any  $\theta$ ,  $M_0\{\phi_k(\xi, \theta)\} = 0$ ,  $k = 1, 2, \dots, s$ . The estimates of the parameters are found for the solution of the system of equations

$$\sum_{i=1}^n \phi_k(\xi_i, \theta_1, \dots, \theta_s) + \sum_{i=1}^q \lambda_i f_{i, \theta_k}(\theta_1, \dots, \theta_s) = 0, \quad (1)$$

$$f_i(\theta_1, \dots, \theta_s) = 0, \quad i = 1, \dots, q, \quad k = 1, \dots, s.$$

Under very broad conditions for the functions  $\phi_k(x, \theta)$ ,  $f_i(\theta)$ ,

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IBRAMKHALIKOV, I. SH., Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb.,  
1972, vyp. 6, pp 60-73

$k = 1, \dots, s, l = 1, \dots, q$ , the existence of consistent and asymptotically normal estimates of the parameters  $\theta$  which are solutions of equation (1) is proved. The generalizations of the system of equations (1) were also investigated.

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UDC 519.281

USSR

IERAMKHALILOV, I. Sh.

"On a Theory of an Evaluation of Distribution Parameters"

Teoriya veroyatnostey i matem. statist. Mezhd. nauchn. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1970, No 1, pp 90-99 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V152)

Translation: Let  $\xi_i$  be independent observations on a random variable with a distribution function  $F(x, \theta)$ , where  $\theta$  is an independent parameter. Let there also exist a function  $f(\theta) > 0$ , such that for all  $\theta_i \in R^1$  ( $i = 1, 2$ ) satisfying  $\theta < |\theta_1 \theta_2| \leq f(\theta_2)$ , we have

$$\frac{1}{\theta_1 - \theta_2} \int \varphi(x, \theta_1) dF(x, \theta_2) < 0.$$

For any  $\theta \in R^1$  there exists a differentiable function  $\lambda(\theta) > 0$ , such that  $\lambda(\theta) \varphi(x, \theta)$  is uniformly continuous over  $x$ . (These conditions may also be given for the function  $\varphi(x, \theta)$ ,  $\bar{x} \in R^k$ ). It is shown in the paper that for these and certain other very general assumptions relative to the

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IBRAMKHALILOV, I. Sh., Teoriya veroyatnostey i matem. statist. Mezhd. nauchn. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1970, No 1, pp 90-99 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V152)

function  $\phi(x, \theta)$  (and also the function  $\phi(x, \theta)$ ,  $\bar{x} \in R^k$ ) the root of the

$$\sum_{i=1}^n \varphi(\xi_i, \theta) = 0 \left( \epsilon \sum_{i_1, \dots, i_k=1}^{n, \dots, n} \varphi(\xi_{i_1}, \xi_{i_2}, \dots, \xi_{i_k}, \theta) = 0 \right)$$

exists and this root is a justifiable and asymptotically normal evaluation of the parameter  $\theta$ .

Author's abstract.

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USSR

UDC 519.281

IBRAMKHALILOV, I. Sh., SKOROKHOD, A. V.

"Note on Determining the Average for Gaussian Distributions in Hilbert Space"

Teoriya veroyatnostey i matem. statist. Mezhd. nauchn. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1970, No 1, pp 86-89 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V151)

Translation: Let  $\mu_a$  be a family of Gaussian distributions in Hilbert space  $X$  with an average  $a$  variable in the set  $A$  and a constant correlation operator  $B$ . The existence of a justifiable evaluation for  $a_2$  on the basis of one observation is proved under the assumption that  $a = a_1 + a_2$ , where  $a_1 \in B^{1/2}(X)$ ,  $a_2 \in S(X)$ , and  $S$

is an everywhere continuous symmetric operator for which  $B^{1/2}(X) \cap S(X) = \{0\}$ .

The case in which  $A$  is a finite-dimensional space is considered.

Authors abstract

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USSR

IBRAYEV, A.

"Graphs and Electrical Circuits"

Tr. Mosk. Aviats. In-ta [Works of Moscow Institute of Aviation], 1972, No 250, pp 35-44 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V429, by V. Yevstigneyev).

Translation: A methodological article. The author tells us how the concept of a stream graph can be introduced and how stream graphs can be used to solve linear equations (using graph transformations) in optional and club studies in secondary school. The author believes that this material allows the students to familiarize themselves with the practical applications of graph theory and its relationship to other sections of mathematics and physics.

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USSR

UDC 669.295.004.2

BELOSKURSKAYA, G. I., IBRAYEVA, M. Zh., YANCHANFU, L. V., and SABDENOVA, Sh. S.

"The Problem of the State of Health of Workers in the Titanium Industry"

Tr. In-ta krayev. patol. KazSSR (Works of the Institute of Regional Pathology, Kazakh SSR), 1970, 19, pp 228-230 (from Zh Metallurgiya, No 1, 71, Abstract No 1G196 by A. Tseydler).

Translation: A total of 297 men and 56 women working in titanium production were examined. Diseases noted included: diseases of the upper respiratory tract (26.4%), influenza (21.2%), angina (19.5%). The complaints of the workers during the examinations were distributed as follows: increased fatigue and general weakness 33.1%, frequent headaches and dizziness, 37.1%, increased perspiration, 27.8%, insomnia, 14.4%, tussis 28.3%. No significant pathology of the cardiovascular system was noted. The conclusions are not final. Further dynamic observations are continuing.

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USSR

UDC 541.49

SUMAROKOVA, T. N., IBRAYEVA, T. D., and NEVSKAYA, YU. A., Institute of Chemical Sciences, Kazakh. SSR Academy of Sciences, Alma-Ata

"Interaction of Metal Halogenides With Trialkylphosphates. III. Antimony Trichloride-Tributylphosphate"  
Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Khimicheskaya,

No 6, 1973, pp 15-20

Abstract: Viscosimetric, densitometric, cryometric, conductivity, and IR spectroscopic studies were conducted on the interaction of  $SbCl_3$  with tributylphosphate (TBP). Two complexes were formed:  $2SbCl_3 \cdot TBP$  (I) and  $2SbCl_3 \cdot 2TBP$  (II). In I the coordinate valence of Sb was 3, and in II 4. Coordination of TBP with Sb(III) in I and II was by means of the oxygen atom in the phosphoryl group.

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USSR

UDC 541.49

SUMAROKOVA, T. N., IBRAYEVA, T. D., and NEVSKAYA, YU. A., Institute of Chemical Sciences, Academy of Sciences KAZSSR, Alma-Ata

"reactions of Metal Halides with Trialkylphosphates. I. Stannic Chloride-Tributyl Phosphate"

Alma-Ata, Izvestiya Akademii Nauk KazSSR, Seriya Khimicheskaya, No 3, May-Jun 73, pp 21-28

Abstract: Complex formation in the system  $\text{SnCl}_4$ -tributyl phosphate [TBP] has been studied by the methods of viscosimetry, as well as volumetrically, conductometrically and cryometrically. In addition, the transfer of ions in stannic chloride solutions in TBP has been studied and their IR spectra were taken. It has been shown that  $\text{SnCl}_4$  reacts exclusively with TBP via an oxidation-reduction reaction, leading to the formation of complex compounds:  $\text{SnCl}_4 \cdot 2\text{TBP}$ ,  $2 \text{SnCl}_4 \cdot 2\text{TBP}$ , and  $2 \text{SnCl}_4 \cdot 3\text{TBP}$ . In  $\text{SnCl}_4 \cdot 2\text{TBP}$  complex, TBP is coordinated through the oxygen of the phosphoryl group. In the other two complexes TBP exhibits dual properties, the oxygen of the P-O-C group also participating in the coordination bond.

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1/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--RESULTS OF STUDYING TSN, 15 CYCLONES OPERATING IN A LOOP -U-  
AUTHOR--(02)-IDELCHIK, I.YE., SHTEYNBERG, M.YE.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(2), 154-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--GAS FLOW, HYDRAULIC RESISTANCE, PRESSURE GRADIENT, PIPE FLOW,  
DIFFUSER FLOW, CYCLONE SEPARATOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1496 STEP NO--UR/0064/70/046/002/0154/0155  
CIRC ACCESSION NO--AP0118483

UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118483

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FITTING OF A RING DIFFUSOR BEHIND A CYCLONE MOUNTED IN A LOOP CAUSES A MARKED DECREASE (BY SIMILAR TO 20PERCENT) OF THE RESISTANCE (TO GAS FLOW) OF THE SYSTEM; AN ELBOW IN THE PIPING NEAR THE DIFFUSOR DOES NOT NECESSARILY INCREASE THE RESISTANCE, AND UNDER CERTAIN CONDITIONS MAY EVEN CAUSE A SLIGHT DECREASE IN RESISTANCE.

UNCLASSIFIED

IDEAL'CHIK, Kh. I.

JPRS 55570

29 Nov 72

UDC: 613.816:001.3(47)"1909-1910"

FIRST ALL-RUSSIAN CONGRESS ON THE CONTROL OF HEAVY DRINKING

Article by Kh. I. Ideal'chik, candidate of medical sciences, M.I. Arkin, and  
A.I. Kiselev, candidate of medical sciences, All-Union Scientific Research  
Institute of Social Hygiene and Public Health Organization (Insti N.A. Semashko,  
Moscow, Sovetskaya Meditsinskaya, Russian, No 2, 1972, submitted  
10 July 1971, pp 61-62)

The urgency of the problem of controlling alcoholism makes it imperative  
to study not only its state today but also to pursue an in-depth historical  
analysis. Until now there had not been an exhaustive and generalizing  
study dealing with the history of excessive drinking and control thereof in  
Pre-revolutionary Russia and the Soviet Union. In the department of history of  
medicine of the All-Union Scientific Research Institute (Insti N.A. Semashko,  
Moscow) is being done in order to fill the gap in this area. The present article  
is one of the parts of that investigation.

The culminating element in the history of studying alcoholism in  
Pre-revolutionary Russia was the First All-Russian Congress on the Control of  
Heavy Drinking, which convened in Petersburg from 24 December 1909 to 6 January  
1910. This congress was an extremely interesting event in Russian public  
life. In it were reflected several of the socio-economic phenomena  
of the time: the problem of alcoholism in the early 1900s. An effort was made there to consider  
the problem of alcoholism in all its diversity from medical, health, socio-  
economic, political, legal, and moral-ethical positions. The congress parti-  
cularly fruitfully considered a wide circle of social hygienic problems.  
The struggle against the scourge was extremely broad. More than 150 reports were  
submitted and discussed at plenary sessions and three sections ("Alcohol and  
the Labor Question," "Alcohol and Society," and "Means of Controlling Alcohol-  
ism").

The Russian economy was drawn more and more to the problem of  
controlling heavy drinking since the late 19th century. As it became more and  
more evident, alcoholism became an extremely acute socio-economic problem.  
In spite of the fact that the government hypocritically covered up the  
real picture on sale of alcoholic beverages initiated in 1896 by applying to  
the law heavy drinking, the state of revenue in the state budget from the  
sale of alcoholic beverages grew consistently. The income from liquor  
taxes grew from 24% percent in 1894 to 40 percent in 1909 [1].

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ENDOGENOUS FACTOR IN ACTINOMYCES CIRCOLATUS AND ITS CHEMICAL NATURE  
-U-  
AUTHOR--IDELCHIK, N.S. *I*  
COUNTRY OF INFO--USSR  
SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. BIYAL. NAVUK 1970, (1),  
48-53  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACTINOMYCES, ANTIBIOTIC, CHROMATOGRAPHIC ANALYSIS, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0512

STEP NO--UR/0440/70/000/001/0048/0053

CIRC ACCESSION NO--AP0126260

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126260

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FILTRATES FROM CULTURES TYPE 2 AND 3 (IBID., 1969) HAD A FAVORABLE EFFECT ON BIOMASS AND ANTIBIOTIC PRODUCTION OF DEEP CULTURES OF TYPE 4 A. CIRCULATUS. AUTOCLAVED FILTRATES WERE MORE EFFECTIVE. CHROMATOGRAPHIC ANAL. SUGGESTED THAT THESE ENDOGENOUS STIMULATING FACTORS ARE PHENOL DERIVS.  
FACILITY: INST. GENET. TSITOL., MINSK, USSR.

UNCLASSIFIED



USSR

UDC 518:512.39

IDEL'CHIK, V. I.

"Uniqueness and Convergence of Implicit Vector-Functions"

Kiev, Kibernet. tekhnika -- Sbornik (Cybernetic Equipment -- Collection of Works), No 9, 1971, pp 95-101 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B919, by I. Shelikhova)

Translation: The uniqueness and convergence of the solution to the system

$$W(X, Y) = 0 \quad (1)$$

is examined. Given certain assumptions, a proof is presented for the existence of a unique solution of system (1) and also for the convergence in each  $(k + 1)$ -th interval of Newton's method in the solution of the system

$$W(X, Y^{k+1}) = 0$$

(evaluations of quantities used in Kantorovich's theorem on the convergence of Newton's method are examined; a formula is derived for determining the number of intervals in each of which Newton's method converges).

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USSR

UDC 512.25/.26+519.3:330.115

IDEL'CHIK, V. I.

"Study of the Properties of the Solution of a System of Linear Algebraic Equations with Degenerate Matrix of Special Type and Special Quadratic Programming Problem"

Metody Upr. Bol'shimi Sistemi. T. 2, [Methods of Control of Large Systems, Vol. 2--Collection of Works], Irkutsk, 1970, pp 227-240, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. SV536, from the Introduction).

Translation: The properties of the solution of a system of complex linear algebraic equations with complex coefficients and degenerate matrix of special type are studied. The existence, uniqueness and stability of the solution are studied, and the solution, normal according to Tikhonov, is analyzed as applicable to this system. Furthermore, conditions of existence of the solution of a special system of non-linear algebraic equations are studied, as well as a problem in quadratic programming in which the limitation is the system of algebraic linear equations with real coefficients and degenerate special matrix analyzed. These problems arise in the design of electrical circuits.

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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ASSESSMENT OF IRON DEPT IN THE ORGANISM AND DIAGNOSIS OF  
HYPOFERROUS ANEMIA -U-  
AUTHOR-(02)-APULLONGVA, L.A., IDELSON, L.I. I

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 41-43

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IRON, URINE, ANEMIA, DIAGNOSTIC METHODS, DIETARY MINERAL  
DEFICIENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1924

STEP NO--UR/0504/70/042/006/0041/0043

CIRC ACCESSION NO--AP0129273

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129273

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. THE AUTHORS EXAMED 34 WOMEN WITH  
HYPOFERROUS ANEMIA. THE CONTENT OF IRON IN THE URINE AFTER INJECTION OF  
500 MG OF DESFERAL WAS LOW (0.45 PLUS OR MINUS 0.05 MG-24H). THE NORMAL  
EXCRETION IS 0.94 PLUS OR MINUS 0.07 MG-24H. THE TEST IS USEFUL FOR  
DIFFERENTIAL DIAGNOSIS OF IRON DEFICIENCY AND ANEMIA. THE METHOD HELPS  
TO REVEAL LATENT IRON DEFICIENCY. FACILITY: TSENTRAL'NOGO  
INSTITUTA USOVERSHENSTVOVANIYA VRACHEY I GRUPPA AKAD. AMN SSSR I. A.  
KASSIRSKOGO NA BAZE TSENTRAL'NOY KLINICHESKOY BOL'NITSY NO 2.  
MINISTRSTVA PUTY SOOBSHCHENIYA, MOSKVA.

UNCLASSIFIED